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ABSTRACT

This report of a symposium includes the remarks of two nationally-known speakers on topics affecting the future of higher education in the West and across the nation, and a summary of panel response offering the perspectives of western educators and business people. The first speaker, Harold Hodgkinson, discusses dramatic demographic trends, notably the huge increases in the numbers of minority students now in elementary schools who will soon enter higher education institutions. He emphasizes potential costs to society and education if states and institutions are unprepared. The second speaker, Anthony Carnevale, addresses the changing shape of the national economy and its relation to global economy. He identifies economic, human, and learning issues needing careful state and institutional response. Panelists emphasize the need for western higher education to be ready to accommodate the economic and demographic realities thus identified. Issues to be addressed include the West's potential for economic diversification and the importance of maintaining the content and quality of the existing curriculum rather than changing it to fit special needs of minorities. The panelists recommended that individual institutions establish special programs to reach and retain minority students in secondary schools, and that the higher education and secondary education communities establish closer relations to ensure better prepared students. (SM)

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The Future of Higher Education

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Western Interstate Commission for Higher Education

The Western Interstate Commission for Higher Education, or WICHE, is a nonprofit regional organization established by interstate compact to help western states to work together to provide high-quality, cost-effective programs to meet the education and manpower needs of the western region. Member and affiliated states are:

Alaska	Nevada
Arizona	New Mexico
California	North Dakota
Colorado	Oregon
Hawaii	Utah
Idaho	Washington
Montana	Wyoming

WICHE's three major goals are to:

- Assist the states to achieve their economic and social needs by identifying requirements for technically and professionally educated persons;
- Promote excellence in higher education through greater effectiveness and efficiency of programs while reducing duplication of programs among states;
- Strive to ensure adequate opportunities for students through improved access to education.

Among its activities, WICHE identifies trends and provides information to higher education and government officials as they address important policy issues in their states and across the region.

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WICHE Commissioners ..... Inside Back Cover

Foreword

As chair of the Western Interstate Commission for Higher Education (WICHE), I am pleased to present this publication, which includes the remarks of two nationally-known speakers on some topics that are certain to affect the future of higher education throughout the West and the nation.

The material presented here is edited from presentations given in a symposium on "The Future of Higher Education" at the December, 1985 WICHE Annual Meeting. Harold "Bud" Hodgkinson alerts us all, especially those of us in the western states, to some dramatic demographic trends, particularly the tremendous increases in the numbers of minority students who are now enrolled in elementary schools and will begin to enter higher education institutions in a few years. He emphasizes the potential costs to society and to education if states and institutions remain unaware and unprepared, if they continue to ignore the fact that the entire education system is a single, interconnected continuum.

Anthony Carnevale addresses the changing shape of our national economy and its relation to the global economy. He identifies important economic, human, and learning issues that call for careful responses by our states and institutions. Carnevale points out that the nature of the crucial "partnership" between higher education and employer institutions is constantly changing, and he notes the importance of understanding and responding to this changing relationship.

The way states in the western region take account of the demographic and economic realities facing them and how they shape their priorities in response will determine not only the fate of institutions and students, but the very nature of society itself. I am delighted to have the opportunity to introduce a WICHE publication of such importance to us all.

Arliss Sturgulewski, Alaska
WICHE Chair, 1986

Introduction: The Panel's Perspectives

The perspectives of western educators and business people were represented by a panel assembled to respond to the presentations of Harold Hodgkinson, a senior fellow at the American Council on Education, and Anthony Carnevale, chief economist and vice president of government relations at the American Society for Training and Development. Panelists were:

Philip E. Austin, president of Colorado State University;
Lucy Black Creighton, vice president and economist at the First Interstate Bank of Denver;
Kaye Howe, vice chancellor for academic services at the University of Colorado, Boulder;
Rafael Magallán, managing director of the Tomás Rivera Center in Claremont, California; and,
Jim Scherer, Colorado state representative and chairman of the House Education Committee, who served as panel moderator.

The panelists emphasized the need for western higher education to be prepared to accommodate the economic and demographic realities identified by the two speakers. In discussing the issues higher education needs to address in responding to the changes it faces, the panelists pointed to the following:

- the West's potential for economic diversification;
- the importance of a broad, liberal arts curriculum in providing a sense of how past societies have coped with dramatic changes;
- the need to include the concepts of retention and success, as well as access, in the notion of educational opportunity;
- the need to make administrators and faculty aware of the demographic and economic facts and of the need to plan active responses;
- the importance of maintaining the content and quality of the existing curriculum rather than changing it to fit special needs of minorities;

- the need to improve the overall quality of pre-collegiate education for all students;
- the reality of economic constaints facing the states versus the importance of providing funding to make necessary changes; and
- the necessity for a diversity of approaches on the part of different types of institutions.

The panelists also suggested specific responses that western higher education institutions and policy makers might make to respond to the increasing numbers of minority students in the West. The panel recommended that:

- individual institutions establish special programs to reach and retain minority students in secondary schools;
- colleges and universities develop improved student services and support programs to help larger numbers of students from different backgrounds succeed;
- the higher education community and the secondary education community establish closer relations to ensure better-prepared students;
- large state universities capitalize on their unique strengths, such as the opportunity for students to participate in faculty research projects, rather than trying to emulate small liberal-arts colleges;
- universities establish now—before the largest influx of minority students enter higher education—public relations programs, equipment programs, and support programs to address the special needs of minority students.

Harold Hodgkinson

One of our great mistakes has been to believe that if you project all the current facts in a linear way for 20 years, you will have a picture of the year 2006. It is simply not true. Instead, what is needed in order to envision the future of higher education is a new way of looking at the present—one that takes account of the drastic changes now taking place in population groupings in this country. These demographics provide the key to unlock the future and to shape it.

Demographic Trends

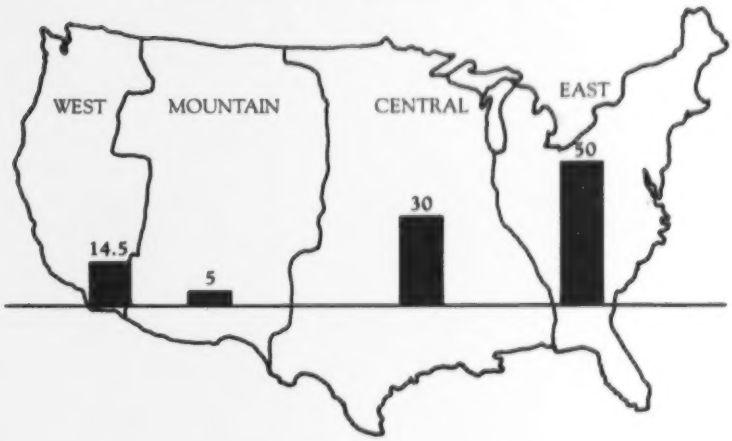
Where are the population centers in the United States? People in the West always say, "around water." People in the East always say, "in the Northeast." In fact, approximately 70 percent of the American population lives within a hundred miles of an ocean or Great Lake.

If you look at the distribution of the population, you get an important insight about the draw of water. Although it is not true that most people live in the Northeast, it is true that they live in the East. Seventy-four percent of retail sales in the United States are east of the Mississippi.

There are four time zones of equal size in the U.S. One-half the population is in the eastern time zone, 30 percent in the central. By the time we get west to the WICHE region, we have already passed over 80 percent of the American population. The notion that everyone is moving to the Sunbelt is wrong unless you redefine the Sunbelt as the Southeast, which has the largest amount of statistical growth. The mountain time zone's percentage of growth is high, but not in terms of 237 million people. Fourteen percent of the country's population lives in the western time zone, but if you take California's population away, you don't have much left because one out of nine in the entire U.S. population is Californian. In fact, two-thirds of the world's immigration is to California.

If you look at the census map, you can see the big urban areas where most people live—declining cores, with rapidly expanding peripheries. That fact is going to be important in the West because of some particular problems in western development.

Figure 1
Of 237 Million Population,
Percentage that Resides in Each Time Zone



In many cities, Blacks are moving to the suburbs. Following are the percentages of Black persons who have escaped core cities and moved to the suburbs:

	Blacks in Metro Area	Blacks in Core City	Blacks in Suburbs	
Miami	281,000	87,000	194,000	(69%)
Newark	406,000	191,000	215,000	(52.9%)
D.C.	870,000	448,000	422,000	(48.5%)
L.A.	943,000	504,000	439,000	(46.5%)
Atlanta	525,000	283,000	242,000	(46%)
Oakland	263,000	159,000	104,000	(39.5%)
St. Louis	319,000	206,000	113,000	(35.4%)
Birmingham	240,000	158,000	82,000	(34.1%)
Philadelphia	883,000	638,000	245,000	(27.7%)
Cleveland	345,000	251,000	94,000	(27.2%)

The rank order of the cities is astonishing. The reason Miami has the highest rate is that Miami has no physical barriers to indicate change in status, class, or ethnicity. St. Louis, on the other hand, has three geographical boundaries that Blacks must cross.

Countertrends

I suggest it is premature to say that everyone is moving West. The countertrend is people moving back to the Midwest. Many people think of Houston as the city of the future and Detroit as the city of yesterday, but let's look at that. Houston's population increase slowed in the last two years of the decade, whereas Detroit has stemmed its out-migration. However, Houston was up 145,000 jobs in the first two years, down 82,000 in the last two. And poor little Detroit was down 122,000 but now is up 53,000. Of the 53,000 new jobs in Detroit, one-third are in manufacturing. Manufacturing is dead; we all know that; we read about it in *Megatrends*. The only trouble is, the data do not support it. Look at housing permits: up 84 percent in Houston for the first few years of the decade, and now down 55 percent; whereas Detroit was down 50 percent in the first two years, but is now up 157 percent. One of the big problems in Detroit is getting new housing built quickly enough for the people who want to be near the jobs. But in 1984, 20 percent of the office space in Houston was vacant.

Regional Differences

A wonderful book, *The Nine Nations of North America*, says a great deal about the way areas of the country differ by region. The West, of course, includes the Pacific Northwest, which is what the author calls Ecotopia, because right along the coast people have more fervor about the environment than anywhere else in the country. Then there's Empty Corridor (Nevada-Utah), which remains empty; the Western Energy Belt (the northern Rocky Mountains); and the Hispanic area (Arizona, New Mexico, southern Colorado, and Texas). All these different nations have different cultural values, but they are all part of the West. The West, in fact, has more diversity in terms of values than any other region.

We have had to revise the National Planning Association census data bases in terms of projected growth rates in the West. What we have learned since 1980 suggests that growth rates in all western states except California are slowing, and they are beginning to slow in California also. So don't take projections too seriously. They are percentages computed on very different numerical bases and do not really suggest the nature of reality.

The growth rate in Colorado is slowing. There will be an increase of a million people between now and the year 2000 in Colorado, but the state has 15 years to absorb those million people. It also has the advantage of being able to spread that population across the suburban fringe. The Denver metropolitan area is 1.5 million,

with a city of about 500,000. The metro area is now three times as large as the city, and the city is probably declining as a percentage of the metro area.

As we think about regions, we note that many young people from the Northeast go out of state for college, a phenomenon very rare in the West. If the West had Connecticut's percentage of out-of-staters (45 percent of high school graduates leave Connecticut to go to college), there would be a very different system to run in the WICHE region. One of the reasons students leave Connecticut and New Jersey is the perceived lack of quality in the state higher education system. On the other hand, in Texas, only 6 percent of students leave; in California, just 7 percent.

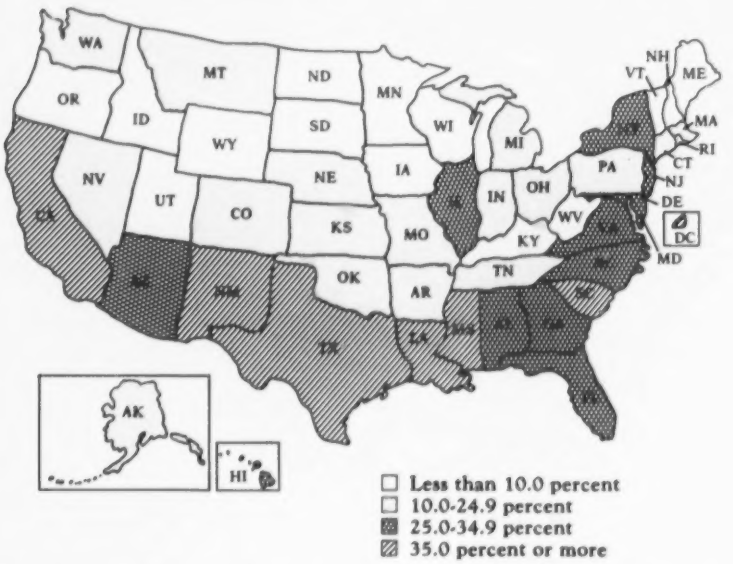
Growth in Minority Influence

Another point of special interest in the West is the growing importance of the third big immigrant group. Five million Asian Americans now live in the United States, up from three million just a couple of years ago. Most of them immigrated; the birth rates are not high. Only 47 percent of the entering freshman class at Berkeley this year was white—no increase in Blacks, no increase in Hispanics, but 26 percent Asian Americans. Now colleges can admit a minority Asian American student, get affirmative action credit for doing so, and have the SAT math average go up as a consequence. One-third of the Asian American parents already have a college degree. That issue is going to be very important for the West.

Another trend is the evolution of the Black middle class—an educated, politically sophisticated, Black middle class. There are now 286 Black mayors in the United States, up 240 from 1970. That reveals a huge increase in Black political access. Blacks are proportionate in terms of their leadership except in Illinois, where they are unusually strong. This change suggests that our notion of minorities needs to shift, because they represent as broad a socio-economic range today as do whites. Any college that wants to recruit "the Black student" must be very careful. There are many Black students today whose fathers and mothers went to Harvard, Yale, Wellesley, and Williams.

Hispanics are beginning to move into the world of small business and entrepreneurship. Hispanics consume about $70 billion worth of goods and services a year, and that is a big enough market so that everyone wants to get at it. Companies like Coca-Cola (which has three franchises owned by minorities) have realized that 30 percent of their product is consumed by minorities. Companies like Coca-Cola, Burger King, and McDonalds are working rapidly to get minorities into leadership positions.

Figure 2
Minority Enrollment as Percent of Public Elementary/Secondary School Enrollment, by State



Percent minority enrollment in public elementary secondary schools was generally greatest in the southern and southwestern states and in California. The percent Black enrollment was highest in the southern states while the percent Hispanic enrollment was highest in New Mexico, Texas, California, and Arizona.

SOURCE: *The Condition of Education*, 1984 edition. A Statistical Report by the National Center for Education Statistics.

The Impact of Minorities on Education

All our major cities now have minority majorities. The speed with which this change is taking place is enormous: from a 27 percent minority population to 70 percent minority in Boston in a little over a decade. The teaching force is still 80 percent white, because with tenure you can't easily change the teaching force. Look at some state data: In Texas, 46 percent of the children in public schools are nonwhite. If they all fail and go on welfare at age 16, there isn't enough money in the world to allow white Texans to retire. I can't make my point any more baldly than that.

A recent update from the Bureau of the Census indicates that the "baby boomlet" is ended. The 1984 birth rate turned out to be the lowest in the decade. But the Hispanic birth rate was 86 births per 1,000 females; for Blacks, it was 72; for whites, it was 64. White

populations are not maintaining themselves; that is, not enough white children are being born to maintain the percentage of whites in the population. That differential fertility is very important to the West.

With the average white in America being 31 and the average Black being 25 and the average Hispanic being only 22 years of age, it is clear who is going to continue to have the most children. An enormous number of Hispanic women are just coming into their child-bearing years. They don't need to have 10 children per female, they just need to have three, to create a baby boom that will continue for another 20 years. This is what is in store for the western education. If you take account of that and develop a strategic plan for it, the West will be in very good shape.

In addition, the wealthier and better educated have fewer children, and that is true for all races. Those who have the most children are the poor (89 per 1,000 females), not those who make over $35,000 per year (46 births per 1,000), and those who did not complete high school (82 per 1,000 females), not those with five years of college (56 births per 1,000).

In 22 states, 15 percent of all births were Hispanic. As a result, the press has finally discovered what has been known for 10 years: the majority of elementary school age children in California are nonwhite. These children will grow older and become tomorrow's adult population.

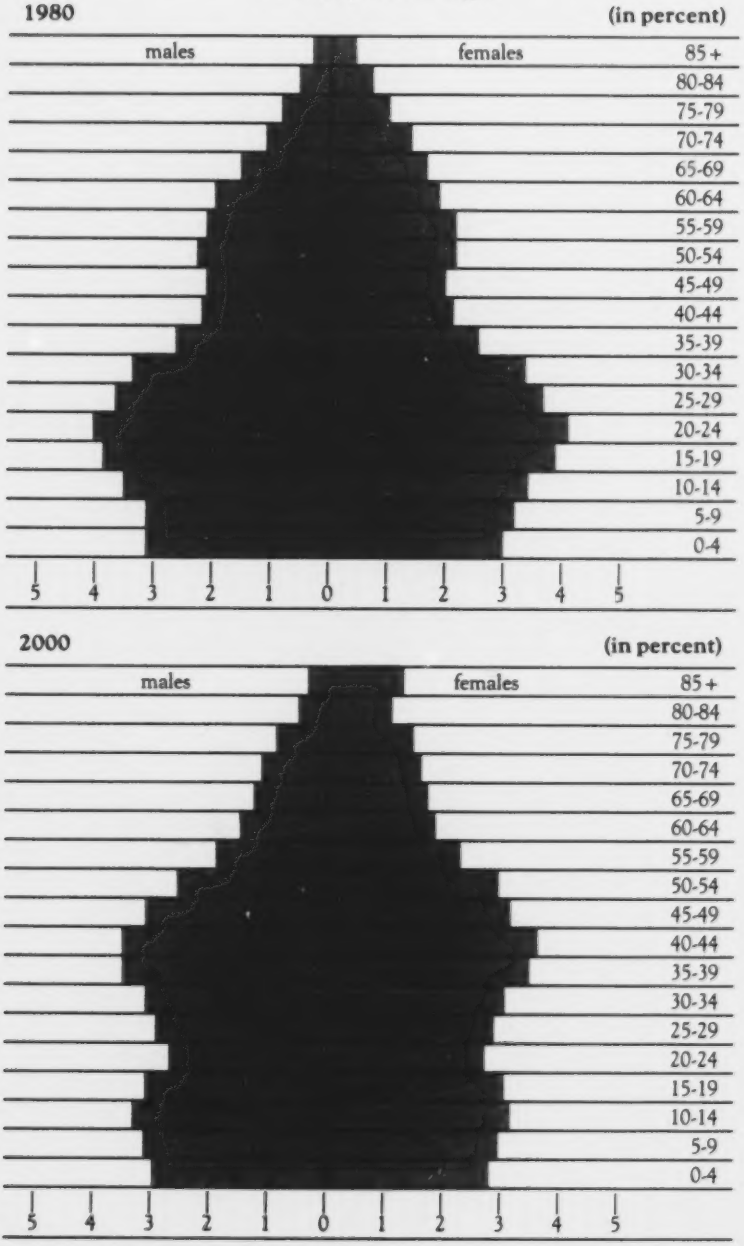
The reason demographics are so powerful is that you cannot add to the cohort in any given year. We have begun to realize that we must do something about these changes to make sure that these young people get the maximum amount of education we can provide.

A final irony: at the very time that the job market is opening up at the top for women and minorities—not much, but a little—when aspirations for college ought to be up, we find an astonishing trend. Although many Blacks and Hispanics graduate from high school, the percentage who go on to college has declined sharply. At the time we need them the most—because they're going to be the workers who cover our retirement—they have decided that college is not a good deal.

An Aging Population

This country reached an historic watershed in 1983, because in that year we had more people over 65 than teenagers. As long as you live, that will be the case; nothing can change it. The importation of five million one-year-olds tomorrow would not change that figure one bit. A nation requiring youth, exuberance, and energy is going to have to get along with a larger number of over 65s than teenagers.

Figure 3
The Baby Boom Ages



SOURCE: *American Demographics*, January, 1983.

Some enormous changes will begin right after the year 2000, as the baby boom begins to retire.

In the 1990s, the leading edge baby boomers, nearly all white, will be in their 50s, and in the year 2000, the baby boom group will begin to retire. By the year 2020, the baby boomers will have retired and the younger people will be paying for them. When my father retired, 17 people paid his Social Security trust fund; when I retire, three will pay mine. Of the three workers who pay mine, one will be nonwhite. It has suddenly become vital for minorities in America to get a good education and a good job for a brand new reason. If they don't, I don't retire. The baby boom, on the other hand, is now in its 40s and widely ignorant of social issues. I predict that they will not be interested until they get into their 50s.

Where are older people located? The Eastern states have a very large number of baby boomers in their 30s and 40s, which raises the mean, but the Eastern states don't have many people over 65. But in the Great Plains states 20 percent of the population is now over 65. Our second most rapidly aging state is Iowa. That is not because older people are moving to Iowa to retire for the beautiful mountains and the seashore, but because young people leave Iowa as soon as they can get a driver's license. The most rapidly aging states are Iowa, Kansas, and Missouri. In those states there is a possibility of "warfare" between the generations. That many people over 65 have a great deal of political clout; they can begin justifying demands for more services, more money for the kinds of things they need, and less for the educational system. The West is not as concerned about this problem, because it doesn't have many people over 65.

This age analysis helps make clear why the drop in total enrollment in higher education is relatively small—600,000 by 1992 is not a great number. The figure represents a loss of 1.5 million conventionally-aged students but an increase of almost a million students over 25. By the year 1992, there will be about as many people under 24 as over 25. One-half the students in American higher education will be attending part-time. No financial aid will be available to a 50-year-old female, recently divorced, with two children. She may need financial aid, but no federal program will help her because she must attend school part-time. That means it will take eight years for her degree, making her ineligible for a Guaranteed Student Loan or a Pell grant. This suggests an operational problem for higher education in the future.

The country is "youthy" only in counties where 34 percent of the population is under 18. The youth belt is in the southeast states, where schools are being built, where college attendance is likely to go up. It extends all the way over to Utah, with scattered examples in the West.

The western states with clear trends are those in which elementary and secondary enrollments are increasing. Enrollments in Utah, Idaho, Alaska, Arizona, and New Mexico are increasing, and that means more college students. These states are down a little in elementary and secondary enrollment: Washington, Oregon, Montana, Wyoming, Utah, Colorado, and Hawaii. But the long-term prognosis is that their enrollments will even out and probably gain. California and Nevada, though, are going to be behind the 8-ball until the year 2000 and past.

The states of Arizona and New Mexico have very high numbers of single-parent families living in poverty. As a result, with poverty, physical handicaps, and problems with the English language against them, more students who are harder to educate will come into the public schools in these states. The Southeast will increase in conventional Black students 18-24 years old, and the Southwest will increase in Hispanics. In the states with a growth in youth, the youth is overwhelmingly nonwhite.

Responses to the Declining Youth Population

Business, higher education, and the military are all developing strategies to respond to the declining numbers of young people. The military rejects the argument that there will be fewer young people to draw from. They are increasing their advertising and getting many people who would have gone to college but think that the military is a better bet. Some very talented minority young people who have graduated from high school are going into the Army and the Navy. They realize that their access to high technology skills is better, that they are guaranteed a job when they get out, and that they don't need to give up four years of income. They are becoming very successful.

Our response in higher education has been simply to have the college stay open later. We have tried to attract adults by offering the same courses in the evening that we offer during the day. We haven't asked ourselves, "What do adults need?" and then tailor our evening offerings to meet the needs of those adults. For example, there are a great many adults in the United States who don't know how to read. Nobody wants to deal with adult illiteracy except community colleges, but they have done an exceptionally good job in beginning to deal with the problem.

There is a feeling in higher education that the moral thing for students to do is to go straight through and to graduate, on time, eight semesters after they enter. Less than one-half of our students have ever done that, and yet we never think of changing the template. A new lifestyle in which education is an intermittent part of a

person's entire life is going to be the dominant pattern for the next few years. I would think that Colorado, which is the number one state in terms of college-educated people, should be one of the leaders in responding to that demand for intermittent education. We need to rethink retention for this new group, which now includes 50 percent of the students in higher education.

Retention

The schools have done a spectacular job in getting more young people ready for college by increasing the high school graduation rate. Right now, more than 50 percent of the young people in any given cohort can anticipate some kind of further education—a remarkable achievement given the diversity in this country. States differ in how well they retain students, and, in terms of higher education in the West, it is important to know the pattern.

What are the characteristics of higher retention states?—small populations, very few big cities, small schools, small classes. They don't spend more money per student, and they don't pay their teachers more. But they do have small classes. California, which ought to be one of the leaders in terms of its interest in education, and New York, rank near the bottom in terms of retention. It is important to try to figure out why that is.

Other Changes Affecting Education

Changes in the Family Structure. In the West, as in the East, there is another problem: the family is suddenly going through some enormous changes. One aspect of that is America's incredible ability to produce teenage pregnancies. This includes whites as well as Blacks in America. White pregnancy rates among teenagers are higher than in any other nation by a factor of two. Fifty percent of the out-of-wedlock live births in the United States are to teenagers. These children giving birth to children constitute our most severe social problem. The severity of the problem is represented by the fact that every day in America, 40 teenagers give birth to their third child. What do we do about it? Milwaukee has passed a very interesting "grandfather responsibility" law: If you are the parent of a teenage male who makes a young girl pregnant, you are fiscally responsible under this law.

Changes in the Education that is Required in the Workforce. Jobs are getting both "smarter" and "dumber." A large number of jobs do not require much education; 20 percent of college graduates last June (1985) got a job that didn't require college. We must remember that

only about 3 percent of workers have professional, high-tech occupations. High-tech firms do not employ mostly engineers; 85-90 percent of their employees are packers, shippers, craters, assemblers, and so forth. These people, however, are not well-served; they are in a position like that of manufacturing workers in 1900. But we organized those workers, redefined their jobs, created new ones, and made a difference. In the service industry, we need to do the same thing. This is very important, because people who now have a high school diploma get the same job their fathers got with a third grade education. That situation doesn't create feelings of loyalty, patriotism, and well-being.

Conclusion

We have the possibility in this country of doing something pretty wonderful in the next decade, but we also have the possibility of doing something really terrible. The outcome depends on how sophisticated we are in learning about other cultures, and in figuring out what we can do to make sure that every young person of the 14 million foreign-born individuals can maximize his or her possibility for success in this country. Because without them, we can't exist. We cannot be a society in which one-third of us are dependent on the good will and hard work of the other two-thirds; we're almost at the one-third/two-third point now. In the West, you have a great opportunity in the next decade to develop some strategic plans to make sure these problems are minimized and that the average young person achieves the maximum of his or her capability.

Anthony Carnevale

A number of economic questions arise related to (1) regional distributions of economic growth and overall capacities for the nation at large; (2) job possibilities in the United States and in specific regions; and (3) for the role of different institutions—higher education, employers, governments in general—in responding to economic and demographic trends.

Perspectives differ from the viewpoints of states, regions, the national level, and from those looking at international economic trends. The world is all of a piece, in economic terms; it's a seamless web of interconnected trends and events. How one prospers, what one's view is, and which levers are available depend very much on where one sits in that system.

The Macroeconomic View

There are essentially two views—macroeconomic and local. The view of the macroeconomists is as follows: we need not worry about the effect either of technology or of foreigners on American jobs and production; their effect is essentially positive. Technology creates jobs and increases skills in jobs that it affects. It increases the demand for skilled workers and increases wages and wage requirements. When one looks at nationwide data, this view appears to be essentially correct. The argument then follows that the single difficulty that faces the United States is macroeconomic in origin.

The reason that people feel uncomfortable about their current job situation or fearful about the future is that we've just come through the deepest recession since the Great Depression, the 1981 Recession, and because of a series of macroeconomic problems related to the federal deficit. The high deficit forces high interest rates in order to attract capital to pay for that deficit. A high interest rate encourages an influx of foreign capital, which in turn encourages an over-valuation of the American dollar, currently around 30 percent. This makes American products 30 percent more expensive than products of foreign competitors in world and domestic trade, which especially has an impact on consumer durables such as automobiles,

and which accounts for our current manufacturing recession or depression, depending on whether you live in Washington or Pittsburgh.

A note generally added by those with an international perspective is that our major trading partners in the world—the Third World nations—are in deep oil debt to international banks, mostly American banks; therefore they cannot buy American products because they need to conserve dollars. As a result, we have lost millions of jobs to a decline in trade with Third World countries.

The prescription, according to this view, is simple: bring the deficit down to about $100 billion. Thereafter, interest rates will fall, the dollar will fall, the Federal Reserve Board will print more money, and there will be a fairly substantial resurgence in American sales abroad and at home. This solution is favored by conservatives and liberals, Republicans and Democrats. The debate then focuses on how one balances the budget, and on whose back.

I think the macroeconomic view is essentially correct: the major lever for terms of improving the overall economic prospect for the United States is to accomplish some sort of a macroeconomic miracle: reduce the federal budget deficit by $100 billion, and find a way for the Third World nations to repay their debt and, at the same time, to buy American products.

The Local View

The local view, which is quite different, frightens the public more. This tangible view, one that can be seen in one's own community, is that technology and foreigners are stealing our jobs and shutting down American industry. Foreign competition and the impact of new technologies will reduce the overall skill requirements for jobs and the overall education required by the American economy. I think this view is true as well.

This brings me to my original point. If both views are true, it is because the truth depends on where one sits. From a national perspective it is the macroeconomic lever that counts. But from the perspective of an individual person, an individual local economy, an individual institution, an individual employer, or an individual region, the story is quite different. You do not have levers that control the overall size of the pie. The levers available to you control your individual career share of earnings, your individual job prospects, your institutional share of public or private resources, or the fate of your company. A new technology can destroy your profession or eliminate your company, and so can foreign competition. You don't live in the aggregate or on average, you live specifically. Your region, your local economy and the individual people in it are dependent on very specific economic circumstances, skills, and advantages.

Now what all this means is that, while it may not make sense for the national government to build a strategy to cope with foreign production or technology, it is absolutely critical for an individual, a local area, a region, or an institution to develop a strategy of its own. The quality of your personnel, your local labor force, your skill as an individual, and your strategic plan as an employer institution, will determine your share of the national or local economic pie, and your success.

Higher Education and the Infrastructure

The piece of the strategy that involves higher education is the infrastructure. The infrastructure issue is the connection at the regional, state, and local levels between higher education and economic growth and development. It focuses on the provision of good occupational education and re-education, retraining, quality of liberal arts programs for undergraduates, and elementary and secondary education for the children of employees. That is the essential relationship.

Surveys done by the Joint Economic Committee and others over the past few years show quite clearly that the second or third most important factor—always—in determining whether a company locates in an area or not is the quality of the public infrastructure. That includes roads and bridges, but the primary factor is the quality of the education system. First, do you have good elementary and secondary education so that you can send the sons and daughters of the relocated employees to decent schools; and second, do you have a good university system where you can retrain scientific and managerial personnel effectively? Those factors appear least important for manufacturing, and most important for high-tech manufacturing and services.

Understanding the Decline in Manufacturing

Look at the job picture in the United States. People say that manufacturing is declining, and it is—the numbers support that. But you have to understand what this means. All jobs in the United States are declining. Tastes in American consumption have shifted to services, which is what happens in all economies as earnings increase. As you make more money, you need fewer cars and more services: more health care, more aerobics classes, more entertainment, and a variety of other services that people consume as they go up the income scale.

Manufacturing is also declining bacause it is becoming more efficient, and the ratio of capital to labor is increasing. The effect of

that is to displace many employees and to raise the wages and skill requirements of the employees that remain. The difficulty is that if a person loses a manufacturing job, his or her wages will decline by 30 percent immediately and will remain below potential earnings for the rest of his or her life. What one can do for displaced workers is to make them face this situation, and then move them on to alternative job prospects, generally with a loss in wages, with the hope that over a five-year period they will return to their prior wage level and gain very slowly after that. The five-year cycle is one that economists have seen for over 50 years in this kind of research.

Increase in Service Jobs

The increase in service production jobs, however, is phenomenal—there are now 18,700,000 jobs in transportation, trade, finance, insurance, and general services such as health care. Service jobs will continue to be strong, in spite of a coming event which will, in fact, solve the macroeconomic problem. As American manufactured products decline in cost up to 30 percent relative to their competitors, there will be a boom in manufacturing. People will then say manufacturing is back, but it won't be. There will be a temporary boom of five or six years in manufacturing employment, but then the trend will return to the one it has followed throughout the post-war period—a steady decline of manufacturing jobs in proportion to all American jobs. That doesn't mean manufacturing will die in the United States—quite the opposite. Where manufacturing productivity increases by including new technology and eliminating workers, the overall output of manufacturing will go up.

There is an argument, which contains an element of truth, that we are giving away good jobs and creating bad jobs in the American system. In both manufacturing and services, we seem to be gaining low-wage jobs, losing middle-wage jobs, and gaining high-wage jobs. This has led some people to talk about a two-tiered society, with rich people at the top and low-wage people at the bottom, and not much in between: the loss of the American middle class. This has led the labor institutions of the U.S. to say that the decline of manufacturing is the reason for this.

But that is not what is really happening. The answer is not economics but demography. The major demographic fact of life is the effect of the baby boom on American life. We know that when the baby boom came into the work force at 16-24 years of age, wages for jobs in the 16-24 cohort fell dramatically. The reason is simple: too many people looking for work and not enough jobs. Now that same cohort is 25-44 years old and working. The ample supply of labor is depressing wages. It is not, then, a decline in the quality of work due

to technology or foreign competition, but an oversupply of labor that is driving wages down.

Men and Women

The story is different for men than for women. Women today appear to be doing much better that the generations of females before them. In low-wage jobs paying less than $16,000, female participation is declining. Their numbers are rising, however, in mid-wage and high-wage jobs. This does not mean that women are gaining by leaps and bounds; it really just tells how poorly paid their predecessors were. Women in the baby boom generation are doing better than those who preceded them, but they are not doing as well as they ought to, or as well as males are.

The story is quite different for men, who are suffering the major loss in middle income earnings in the United States. The baby boom cohort of males is overeducated, some people feel, and certainly oversupplied. Many males work in jobs in which their predecessors were paid more, but the competition from people with similar qualifications and experience is driving wages down. This is a major problem for baby boom males, and it will continue throughout their professional careers.

Business Employment: Winners and Losers

To summarize, we are losing jobs in areas where wages are generally low: low-level manufacturing, leather tanning, tobacco, bakery, railroad transport, cotton, private household and domestic services, and dairy farming. The western region is troublesome, because we are losing many jobs in extractive industries such as mining. Many others are being lost in farming and wood products, and this will continue. The industries in which jobs are increasing include medical instruments, business services, iron mining, computers, broadcasting—the industries that are, in a fairly loose and generous way, called high-tech production.

Business services increased dramatically between 1959 and 1982 and will increase dramatically again before 1995. Business service employment is topped only by construction and is outrunning construction in some surveys. Generally, business services include computer services, architectual services, engineering, a variety of professional services, protection services, and cleaning services.

Job Creation Strategies for the West

Let me address job creation strategies and offer some advice. First of all, much of the rhetoric about high tech these days is just talk. High-tech production in the American economy is not likely to comprise more than 10 percent of job growth into the next century, and all states are not likely to win major shares of that 10 percent. The real importance of high technology in the American system is not in its production, but in its utilization. For instance, I don't do drafts of documents by hand and have them re-typed over and over; that's not the way it works anymore. I have a computer—in fact, I have three of them. Most of us are using more and more capital in our labor, and that is where the productivity from high tech goes. We need to encourage the introduction of technology into traditionally-based industries.

That brings me to my second point. I think the best advice for a state and local economic development institution comes from Dizzy Dean. In about 1952, the New York Yankees made their way to the World Series, and they changed their pitching rotation in the second game of the series. They promptly lost three games in a row and lost the series. Dean's comment was, "Ya ought to dance with who brung ya." In local and regional economic development, that is very important. Don't look to new industry and people from the outside, unless you have no industry now. Develop the industry you've got. If you are in Pennsylvania and King Coal is what brought you here, King Coal is probably what's going to bring you out, though maybe in a different format, with a different technology and labor mix, a different product line, or more specialization. If mining is your basic industry, mining is probably going to be your basic industry for at least another decade. Turnarounds don't take place overnight.

The third piece of advice I would give might seem contradictory. Mae West said that anything worth doing is worth doing slowly. At the same time a state pays attention to its basic industries and cultivates them, it must also diversify as much as possible. The extractive economies of the West, the oil and timber-related economies, have suffered mightily with fairly minor fluctuations in demand over a period of 40-year cycles. The difficulty is that those economies have not been sufficiently diversified.

That lesson has been learned in Florida and California, where it is easy, and in New England and New Jersey, where it is not easy. In the original campaign speeches Gary Hart made in New Jersey, he apparently thought New Jersey was still the old industrial state of manufacturing and extracted industries. But New Jersey had moved into business services. Somebody suddenly noticed that Hart and the other candidates shouldn't be talking about unemployment because there wasn't any in New Jersey. The New Jersey that had always been

the major state victim of economic cycles in the U.S. no longer was, and their very low employment rate promises to go even lower because they have diversified into business services.

Diversification is one reason why some of the western states will compete effectively to attract new industry. In addition, the basic infrastructures, including an educational infrastructure and the roadway infrastructure necessary for new business formation and for adapting business, are already there. States and regions that become dependent on single industries tend not to have that kind of infrastructure, but one that is fairly specialized and inflexible.

The other reason diversification is important is that none of us knows what the future will hold. Nearly every prediction with respect to political or economic conditions made over the past 20 or 30 years has been dramatically wrong. The constant state of the economy is not balance or equilibrium; change is always the order of the day. Given that the future is uncertain, the diversification of an industrial base allows one to defend against change in a straightforward way.

Demography and the Labor Force

Demography creates three problems for educators and for everyone else. The baby boom group is now in the workplace, which means that the number of people following the baby boom will fall off dramatically, as is the long term historical trend in all western societies. This will create a unique phenomenon. Since 1972, there has been a labor surplus in the U.S. at the entry level, and more people seeking first jobs than there were first jobs to give away. Very shortly, though, we will begin to face a relative scarcity of entry level personnel. Because of the decline in white birthrates, virtually all of the entry-level people available will be minority or female, and they will be needed in areas where we have made the least investment in their education and human resource development.

The second problem affecting education is related to inflation. Inflation is gone, it's not coming back for some time, and there is little reason to fear (once we do something about the federal deficit) printing lots of money or spending lots of money to drive unemployment rates below 6 percent. But once unemployment gets below 6 percent, you run squarely into that population with the most serious human capital and educational deficiencies. That means there will be both a quantity and a quality problem.

In political terms, the day will be won by the national administration with the foresight to use fiscal and monetary policy to drive unemployment very low. That possibility is beginning to emerge again, but we are so used to labor surpluses that it is hard to imagine.

It will mean that the products of American secondary schools will be valuable for the first time in a very long time. The educational products of secondary schools will be saleable to employers, the military, and higher education. Higher education will then have to compete with employers and the military for new secondary school graduates.

The solution for higher education may be to encourage the military and the employer to offer higher education as one of their incentives, and to encourage people to utilize higher education entitlements at various times over their lifetime.

A serious shortage of youth labor has already shown up in the Christmas shopping season. A number of retail companies could not find anybody to come in over Christmas to sell for them. They found they were competing for young people on the basis of wages with other companies that were trying to draw them in as well. The youth labor market is very different now than it has ever been before.

Another problem is that there are still too many of us between 25 and 44. The baby boom generation is in danger of "plateauing" in the workplace. There are too many of us and not enough good jobs, so while there will be a shortage of people behind us, there are not going to be enough good jobs to go around for those of us now between 25 and 44. And we are the generation with the highest expectations for wages, for fulfillment in work, for promotions, and for quality of working life. We are on a collision course with the American economy in terms of its ability to supply those things to us, and that creates both political and economic ramifications.

In response, one thing people can do is go to school. It means that employers might be interested in giving people time off to go to school to keep them happy on the job. In addition, employers will work with lateral promotions and other forms of promotion inside the workplace.

The final demographic factor of importance to you and to employers is the general aging of the workforce. More and more, the problems of American employees are the problems of older employees. Most Americans are in the "consumption" stage now. They are buying houses and TV sets and video cassette recorders, and they will be buying education for their children. But all of this points toward the needs of a much more mature, independent, autonomous, and well-educated working population. Thus, there is a role for higher education in dealing with this older population. People who go to school are people who have gone to school before; schooling seems to create an appetite for more schooling. So we can safely predict that this population will demand more education. The question is who will supply it, and who will pay for it.

The Role of Education in the Workforce

The role of education is much broader than its role in the economic system; it has a cultural and political role as well. As a culture we value individuals, so education is charged with creating individualism in Americans. As a political system we value participation above all else, and education is charged with creating people who can effectively participate in American institutions. It is only recently that the economic value of persons has been a question of any national interest at all, probably because the economy has performed less well than it ought to.

The economy, in fact, has a minor role, and there is a natural tension between educators and employers because of that. You teach people to be autonomous individuals, to value their own opinions, and to believe they can improve the product of whatever institution they are involved in by participating, by speaking their views, and by devoting their whole person to the enterprise. But production, especially manufacturing, is not organized that way. Too much democracy can greatly disturb the production of a car and reduce productivity. There are limits on the ability of individual workers to participate in production with their whole being. It is the genius of industry, especially manufacturing, that it takes people and reduces them to the sum set of basic skills. Industry takes a set of skills and runs them through a very hierarchically-organized authoritarian structure, reorganizes them into a final product, and sells the product. There is not much room for democracy and participation.

There is more room for democracy and participation in the service economy. The development of self-initiative in the American system through the education structure is why people can wander out into the working world with basically no skills and find a place for themselves. If one can convince somebody to pay him or her to do something, then there is a job in it. If I can convince somebody I am a nuclear engineer, and they give me a paycheck for building a bomb, then I am a nuclear engineer irrespective of what my training is.

The impact of education on the economy is pretty clear. Education is a powerful economic lever, and it always has been. Data from the U.S. Department of Commerce show that if you add up all the human factors, including education, they far outweigh capital, land, and other factors in terms of their contribution to economic productivity in growth and national income. Working smarter means learning in the labor market after you get out of school as a member of a team in an employment situation. Productivity, after all, is not an individual phenomenon, it comes from teams of people, individual institutions, and individual employer settings. Education is the second most powerful human factor; all by itself it is more powerful than capital and machinery.

The Human Factor

There are some tragic flaws in the educator-employer relationship. The first tragic flaw is that although we know human factors are critical to overall growth and production, they are only critical in the long term, over 50-year cycles. At any given time in an economy, nobody is dealing with the long term. An employer decides to make a particular kind of widget and discovers he needs to buy a machine to make the widget. That machine is the idea of some engineer, chemist, or scientist who learned the skills to make that machine through schooling. The employer doesn't buy a person, nor does the employer buy a person's educational development. He buys the machine. The employer deals in a short-term world. It is up to the public sector to take the long-term view and spend the money to develop the people who will make the machine.

That leads me to the second problem: we know the human factor is the primary factor of production in this economy and in all western economies, but we don't know why, and we don't know how to create productivity in individual persons. Educators say to employers, "What do you want from us?" and employers always respond, "Give us people with good basic skills, who can make the next product, adapt, be flexible, and keep us competitive." The question then becomes, how do you do that? Employers say, "You are educators; you should know." That is not a good enough answer. We simply don't know how to produce human productivity.

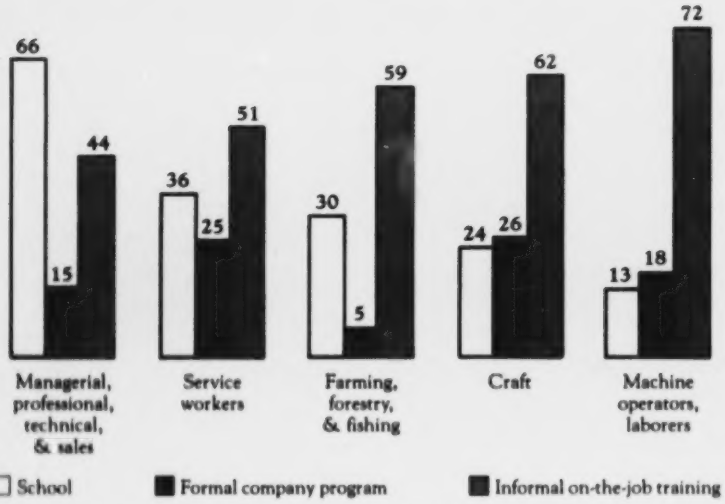
In addition, employers don't invest in people that they can't own. They might get sick or die. You can't guarantee their productivity. No matter what you invest in them, they can get up and walk away and sell somewhere else. An employer invests $5,000 in training an engineer or physicist; then the employer down the road who does the same kind of work invests $5,000 in wage increases for that same engineer or physicist. The engineer or physicist takes the job down the road. The loser is the employer who invests in the educational training.

Where People Learn Job-Related Skills

The answer to where people learn what they need to know to perform jobs is where adult education, job-specific education, and training fit in. The Bureau of Labor Statistics asked people, "Where did you learn what you needed to know to get your job?" The choices were: in school, in a formal company program, or informally on the job. Respondents could say all three, which is why some of these numbers add to more than 100 percent.

The figures show most managerial, professional, technical, and sales workers got the preponderance of their job knowledge from

Figure 4
Sources of Training by Occupational Group
(in percent)



SOURCE: Anthony P. Carnevale, American Society for Training and Development, 1985. Based on data prepared by the Bureau of Labor Statistics, 1985.

schooling (66 percent). What is also remarkable is that formal company programs and learning on the job are also powerful factors in the training of entry level professionals (59 percent combined).

As you go from professional to white collar to craft to blue collar, the importance of schooling becomes less, and the importance of informal and formal training on the job becomes more important.

While we have always known that schooling is important, we are beginning to find out how important learning on the job is. Educational economists have shown that about 13-15 percent of the variation in earnings among workers can be accounted for by schooling. The other 85 percent is accounted for by learning in the labor market.

The learning enterprise involves elementary and secondary education ($144 billion), public and private postsecondary ($94 billion), informal employee learning on the job (estimated $180 billion), and formal employee training (courses paid for or supplied by employers) ($30 billion). It turns out that the formal education and the workplace learning systems are roughly the same size. For job-specific or job-related learning, the employer system is much more important.

Figure 5
The Learning Enterprise

Elementary and secondary $144 billion
Post secondary $94 billion
Employee informal training $180 billion
Employee formal training $30 billion
Government training $5 billion

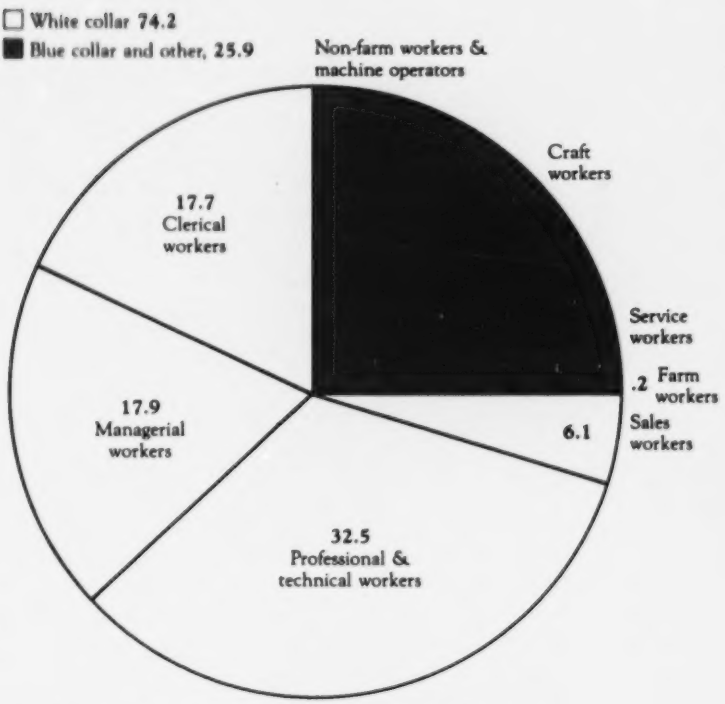
SOURCE: Anthony P. Carnevale, American Society for Training and Development

Employers provide only about 58.7 percent of formal training inside the company. They buy 38 percent outside; 3.2 percent is both. Of that outside training, 34.9 percent is bought from four-year institutions, and 18.6 from two-year colleges and technical institutes. The remainder comes from the "training industry"—learning corporations, consultants, vendors, people who supply high-tech learning devices, and professional or labor organizations.

This is important to higher education because it is already in a very tight partnership with employer institutions. They are a major revenue source, although most academic institutions don't know it. The question is whether the relationship will grow—whether employers will continue to go to higher education institutions for services or whether business firms will simply expand and supply the needed training services themselves.

The distribution of training in employer institutions shows that most people get trained between the ages of 25 and 44, but that may change. Perhaps more training will have to be done at the entry level, and it may be that more training and development will be done among the older cohorts. The occupational distribution shows that white collar people get most of the formal training (74.2 percent). The remainder of the formal training goes mainly to craft workers: machinists, tool and die makers, plumbers, people with craft skills in the private sector. Most laborers and other blue collar workers learn informally on the job, which makes sense, because these are not the people who like school. They tend to learn by doing or by being coached by other people.

Figure 6
Distribution of Trainees by Occupation, 1981
(in percent)



SOURCE: Anthony P. Carnevale, American Society for Training and Development.

What that suggests to employers and should suggest to higher education is that we need to learn how to train and teach people in formats other than courses and classrooms. We need to greatly expand our abilities to do hands-on kinds of teaching.

Final Notes

Let me point to a few things that are a bit off the subject, but which I think are important. First, this set of issues has not been lost on national opinion makers or on public leadership. As a result, there are a variety of legislative proposals in the works to begin leveraging training in the workplace. There are congressional proposals supported by members from many regions of the country which would provide a tax credit to employers for training in the workplace.

They would increase training in the workplace by approximately $4-7 billion, and the revenue for higher education from that would be about $1.5-2 billion. It seems to me that this is an area in which higher education and education generally ought to think about legislative and other kinds of initiatives, both at the state and federal levels.

Then there is the bad news. The worst news, I think, for educators and people interested in training in the workplace these days is something called the "business transfer tax." The business transfer tax is essentially the value-added tax, a national sales tax. It will virtually eliminate the ability of state and local governments to draw from the tax pie, and it will greatly reduce the ability of state and local governments to enact increased sales or use taxes. It may, in an indirect way, reduce the ability to increase property taxes. Reducing the state and local property tax base and the state local tax base produces fairly direct assaults on education, because it is the primary beneficiary of state and local taxes.

The business transfer tax is also essentially a tax on wages and a tax on training. It will reduce the overall amount of training and encourage employers to substitute capital for labor in fairly dramatic ways, by excluding capital from taxation. The issue usually falls outside the domain of educators, but I think it is one of those items in the tax code, like state and local deductibility, which has a very direct and powerful impact on youth.

Symposium Speakers and Panelists

Anthony P. Carnevale is chief economist and vice president of government relations at the American Society for Training and Development, a professional association of 50,000 employer-based human resource specialists in personnel, compensation, training, and industrial labor relations. His earlier career included periods as a consulting economist; government relations director for the American Federation of State, County, and Municipal Employees union; and service as a fiscal and policy analyst in both the U.S. House and Senate and in the Office of Education. He holds degrees from Colby College and the Maxwell School at Syracuse University.

Philip E. Austin became president of Colorado State University in 1984. Earlier he was provost and vice president for academic affairs at Bernard Baruch College and directed the interdisciplinary doctoral program in educational policy at George Washington University. His career also includes federal service as a deputy assistant secretary for education and as an economist in that agency and the Office of Management and Budget. He has held several international assignments relating to educational policy, planning, and evaluation. Dr. Austin holds degrees from North Dakota State University and Michigan State University.

Lucy Black Creighton is vice president and economist for First Interstate Bank of Denver, providing economic information and analysis for bank officers and customers. She is a member of the State Elected Officials Advisory Committee, the Denver Planning Board, and the Governor's Revenue Estimating Advisory Committee. She is a member of the Board of Trustees of Loretto Heights College in Denver and an adjunct professor of economics at the University of Denver. She holds degrees from Smith College, Radcliffe College, and Harvard University.

Kaye Howe moved into academic administration in 1981 as the vice chancellor for academic services on the main campus of the University of Colorado in Boulder. Prior to that she was on the faculty of first the University of Wyoming and later the University of Colorado at Boulder, where she chaired the graduate program in comparative literature, her specialty. She has been active in campus faculty forums and has served on local, state, and national commissions in the arts and humanities. Her degrees in literature are from Washington University in St. Louis.

Harold L. Hodgkinson is a nationally known researcher, author, and lecturer. His most recent project involved the impact of changing demographics on education. He served two years as director of the National Institute of Education, followed by executive positions at the American Management Association, National Training Laboratories, and the Institute of Educational Leadership. He recently joined the American Council on Education as a senior fellow. He has participated in and directed a number of major research projects, written numerous publications, and served as a consultant to state agencies, schools, universities, and corporations. He holds earned degrees from the University of Minnesota, Wesleyan University, and Harvard University, as well as six honorary degrees.

Rafael J. Magallán is managing director of the Tomás Rivera Center in Claremont, California, a national institute for policy studies that focuses on the Hispanic population, its circumstances, and social policies and practices that affect it. He also serves as the director of the National Chicano Council for Higher Education, an organization dedicated to improving the status of Hispanics in higher education. For the past 15 years, he has been involved in educational programming, administration, management, and policy analysis with extensive work in student services and development, especially for non-traditional students.

Jim Scherer occupies an educational leadership position in Colorado after only two terms in the Colorado General Assembly. He chairs the House Education Committee, drawing upon his background as a former teacher and a member and president of the Clear Creek County Board of Education within Colorado. A businessman, Representative Scherer owns and operates a leasing corporation in Denver and is a former president of the Colorado Car and Truck Renting and Leasing Association. He attended Catholic University of America and holds a degree from the University of Notre Dame.

Arliss Sturgulewski is now in her second term as a member of the Alaska State Senate, representing Anchorage. Her long list of activities in state service and civic affairs includes an appointment as a WICHE Commissioner; membership on the Alaska Advisory Committee to the U.S. Commission on Civil Rights; Capital Site Selection and Planning Committees; and a number of local, state, and national professional, political, and volunteer organizations. Senator Sturgulewski received her degree in economics and business from the University of Washington. She is WICHE's chair.

WICHE Commissioners

(September 1986)

WICHE's founding interstate compact established a commission composed of three persons from each member state. These commissioners, who are appointed by their respective state governors, provide policy and program guidance for WICHE. The commissioners represent a cross-section of leaders from state legislatures, colleges and universities, state higher education agencies, faculties, professional groups, and the private sector.

Alaska
Donald O'Dowd, president, University of Alaska system
Kerry D. Romesburg, executive director, Alaska Commission on Postsecondary Education
Arliss Sturgulewski, state senator, Anchorage

Arizona
Myrna Harrison, president, Maricopa Technical College
J. Russell Nelson, president, Arizona State University
Jones Osborn, state senator, Yuma

California
Patrick Callan, executive director, California Postsecondary Education Commission
Glenn Dumke, president, Foundation for the 21st Century, and president emeritus, California State University System
Richard Hovannisian, professor of history, University of California, Los Angeles

Colorado
John Fuhr, veterinarian, Aurora
Morgan Smith, executive director, Colorado Department of Local Affairs
Blenda Wilson, executive director, Colorado Commission on Higher Education

Hawaii
Charles Akama, legislative officer, Hawaii Government Employees Association
Stella Asahara, student services coordinator, West Oahu College
J. D. Watumull, vice president, Watumull Brothers, Ltd., Honolulu

Idaho
John Barnes, retired president, Boise State University
Leno Seppi, dentist, Lava Hot Springs
Lee A. Vickers, president, Lewis-Clark State College

Montana
Chet Blaylock, state senator, Laurel
Carrol Krause, commissioner of higher education, Montana University System
William R. McGregor, physician, Great Falls

Nevada
Patricia Geuder, associate professor of English, University of Nevada, Las Vegas
Paul Page, dean, College of Arts and Science, University of Nevada, Reno
John M. Vergiels, state senator, Las Vegas

New Mexico
James Halligan, president, New Mexico State University
Emmalou Rodriguez, Mountain Bell, Albuquerque
Ruben A. Smith, state representative, Las Cruces

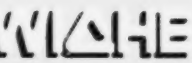
North Dakota
North Dakota, an affiliate state, is represented by John A. Richardson, commissioner of higher education

Oregon
William E. Davis, chancellor, Oregon State System of Higher Education
Georgia Gratke, realtor, Roseburg
Loren Wyss, investment counselor, Portland

Utah
W. Rolfe Kerr, commissioner of higher education, Utah System of Higher Education
James R. Moss, state representative, Orem
Steven Snow, attorney, St. George

Washington
Phyllis Erickson, former Pierce County commissioner, Puyallup
Dan McDonald, state senator, Bellevue
Robert Thoeny, executive director, Washington Higher Education Coordinating Board

Wyoming
Francis A. Barrett, physician, Cheyenne
Frank Prevedel, state senator, Rock Springs
Donald Veal, president, University of Wyoming



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